

REMARKS

No claims have been amended, added, or canceled. Claims 26 and 77-82 are pending in the application. Applicants reserve the right to pursue the original claims and other claims in this and other applications.

Claims 26, 77, 78, 81, and 82 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,976,222 ("Yang"). This rejection is respectfully traversed.

The Office Action fails to establish a *prima facie* case of obviousness at least because the Office Action has not provided proper motivation to modify the reference. The Office action states that "it would have been obvious to one having ordinary skill in the art at the time the invention was made to select any combination of etchant gases as taught in the Yang reference, including Applicants' claimed etchants that would effectively accomplish the disclosed composition since Applicants have not shown evidence of unexpected results." (Office Action, pages 4-5). Applicants respectfully submit that this statement does not establish a *prima facie* case of obviousness.

The legal concept of *prima facie* allocates who has the burden of going forward with production of evidence in each step of the examination process. *MPEP* 2148. The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. *Id.* To establish a *prima facie* case of obviousness there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The teaching or suggestion to make the claimed combination must be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In the case at hand, the Office Action has not provided any motivation as to why one having ordinary skill in the art at the time the invention was made would have selected the components recited in independent claims 26, 77, and 78 from the list of components recited by Yang. Instead, the Office Action has required that Applicant show evidence of unexpected results. However, unexpected results may be used to rebut a *prima facie* case of obviousness. *In re Merck & Co.*, 800 F.2d 1091, 1098 (Fed. Cir. 1986). Unexpected results need not be shown where, as here, the Office Action has not established a *prima facie* case of obviousness. Furthermore, Yang teaches “a fluorochemical containing exhaust gas from a semiconductor fabrication factory conducting an etch or clean process step”. (column 7, lines 5-7). There is no motivation to select the specific components recited by independent claims 26, 77, and 78 for use in a plasma etching composition from the list of components that Yang teaches may be included in the exhaust gas from an etch or clean step. Therefore, because the Office Action has not established a *prima facie* case of obviousness, the rejection should be withdrawn.

Furthermore, the Office Action fails to establish a *prima facie* case of obviousness at least because Yang does not teach every element of independent claims 26, 77, and 78. To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Independent claims 26, 77 and 78 recite, *inter alia*, “[a] plasma etching composition.” Yang does not teach or suggest this limitation. To the contrary, Yang discloses an “exhaust gas from a semiconductor fabrication factory conducting an etch or clean process step.” (column 7, lines 5-7). In one example, Yang discloses an exhaust gas stream made up of 0.6% carbon tetrafluoride, 1.4% hexafluoroethane and the balance (98%) nitrogen. (column 10, lines 9-11). Yang does not teach that the exhaust

gas can be used as a plasma etching composition. Instead, the only use Yang teaches for the gas stream is recovering “fluorochemicals...by contact of the gas stream with a membrane system in combination with an adsorption system.” (abstract).

Since Yang does not teach or suggest all of the limitations of claims 26, 77, and 78, claims 26, 77, and 78 are not obvious over the cited reference. Claim 82 depends from claim 26 and is patentable at least for the reasons mentioned above. Claims 79-81 depends from claim 78 and are patentable at least for the reasons mentioned above. Applicant respectfully requests that the rejection of claims 26 and 77-82 be withdrawn.

Claims 79 and 80 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yang in view of U.S. Patent No. 6,277, 733 (“Smith”). This rejection is respectfully traversed.

The Office Action fails to establish a *prima facie* case of obviousness at least because the Office Action has not provided proper motivation to combine the references and has not shown a reasonable expectation of success. To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. There must also be a reasonable expectation of success. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

As discussed above, Yang discloses “a fluorochemical containing exhaust gas from a semiconductor fabrication factory conducting an etch or clean process step”. (column 7, lines 5-7). An exhaust gas cannot be used as a plasma etching composition.

Smith discloses a plasma composition used for “a clean up step of the instant invention.” (column 4, lines 41-42). Smith further discloses that “this step will neither oxidize any exposed portions of underlying oxygen sensitive conductor 420, nor will it substantially etch any exposed portions of silicon nitride.” (column 4, lines 43-46). Therefore, there is no reasonable expectation that combining the exhaust gas of Yang with the cleaning plasma of Smith would result in a plasma etching composition.

Furthermore, the Office Action states that the motivation to combine Smith with Yang would be “for the purpose of removing hydrocarbon residue left on the metal structure.” (Office Action, page 4). This concept would not motivate one skilled in the art to combine the cleaning plasma of Smith with the exhaust gas of Yang, because Yang does not teach etching, hydrocarbon residue, a metal structure, or the need to remove hydrocarbon residue from a metal structure. Yang only teaches recycling an exhaust gas. (abstract).

Furthermore, the Office Action fails to establish a *prima facie* case of obviousness at least because Yang, even if properly combinable with Smith does not teach every element of claims 79 and 80.

Claims 79 and 80 depend from independent claim 78, which recites, *inter alia*, “[a] plasma etching composition.” As discussed above, Yang does not teach or suggest this limitation. Furthermore, Smith does not teach or suggest this limitation. Smith teaches a plasma composition used for “a clean up step of the instant invention.” (column 4, lines 41-42). Smith further discloses that “this step will neither oxidize any exposed portions of underlying oxygen sensitive conductor 420, nor will it substantially etch any exposed portions of silicon nitride.” (column 4, lines 43-46). Thus, Smith specifically teaches that the composition cannot be used as a plasma etching composition.

Since Yang and Smith do not teach or suggest all of the limitations of claims 79 and 80, claims 79 and 80 are not obvious over the cited reference. Applicant respectfully requests that the rejection of claims 79 and 80 be withdrawn.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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